

## CONOX UCC Pulverized Coal Burner

Since 2017, in urban areas of China, a  $\text{NO}_x$  limit of 100 or 150  $\text{mg}/\text{Nm}^3$  applies at 9%  $\text{O}_2$  for coal combustion at new energy production facilities with an output of < 65 t/h. The specifications for  $\text{SO}_2$  (50  $\text{mg}/\text{m}^3$ ) and dust (10  $\text{mg}/\text{m}^3$ ) were tightened as well. These regulations are therefore still well below the strict standards of the EU. Today, numerous existing facilities are equipped with inefficient grate-fired furnaces – limited output, slow modulation, poor efficiency and increased  $\text{NO}_x$  values are the consequence.

### Low $\text{NO}_x$ -Emissions, maximum Efficiency

SAACKE developed the burner system CONOX UCC (Ultra Clean Combustion) especially for use in Chinese coal power and heating plants. High flame stability, a sophisticated flue gas recirculation, staged combustion and an optimal dust-oxygen ratio enable the energy from the pulverized coal to be safely under the required  $\text{NO}_x$  emission limits and at a very good burn-out of >99%.

### Technical data: CONOX UCC

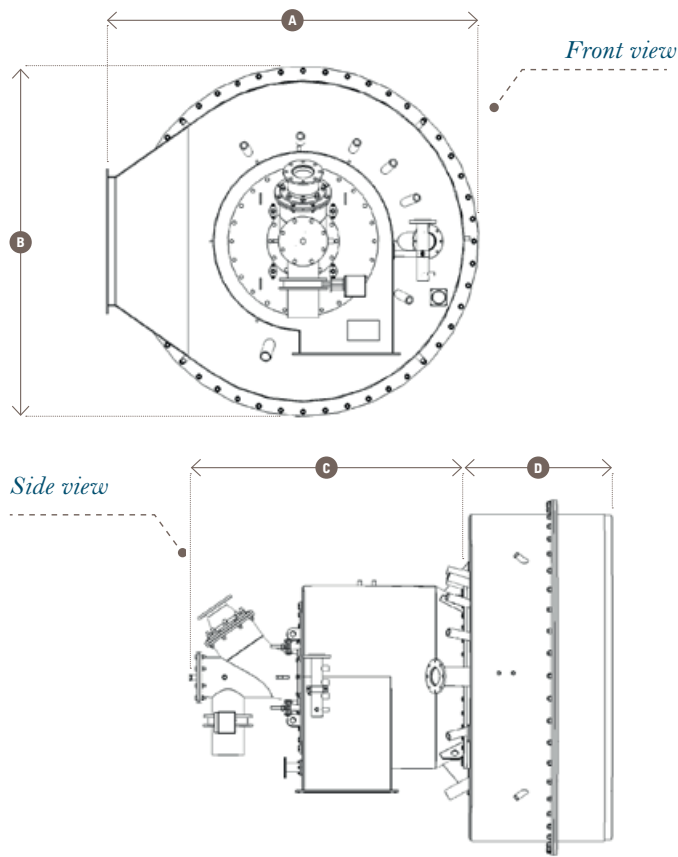
Applications	Steam and hot water boiler
Burner capacity (max.)	4 - 64 MW*
Fuel	Pulverized lignite or coal, natural gas and oil
$\text{NO}_x$ emission values	100 - 250 $\text{mg}/\text{m}^3$ at full load depending on fuel-nitrogen content (with SNCR 100 or 150 $\text{mg}/\text{m}^3$ )**
Heat value	15 - 30 MJ/kg
Control range	1:3 (1:4 possible)

### Dust requirement for coal combustion\*\*\*

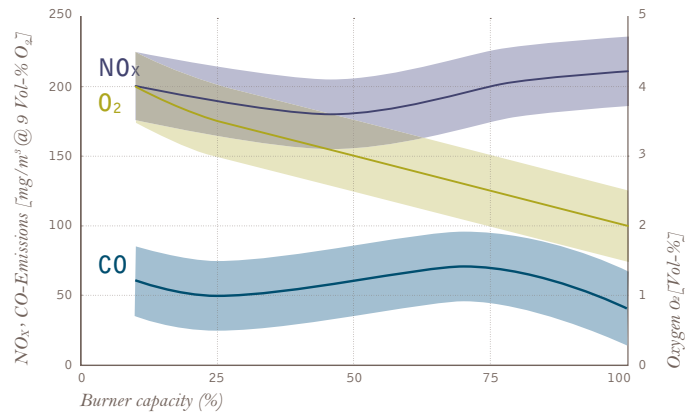
Grain size	100 % < 200 $\mu\text{m}$ , 90 % < 100 $\mu\text{m}$
Sulfur and nitrogen content	< 1 %
Ash content	< 15 %
Ash softening temperature	> 1,150 °C
Volatile constituents	> 30 %
Moisture content	< 10 %

\* Burner sizes 160, 320 and 640 vary in terms of capacity, weight and size. \*\* Depending on coal quality and system concept,  $\text{NO}_x$  emissions of 100 - 250  $\text{mg}/\text{m}^3$  at 9%  $\text{O}_2$  are possible. \*\*\* Dust in this context is defined as a solid material with a maximum grain size of up to 0.2 mm. The above-mentioned coal qualities should be available for the CONOX combustion and thus the adherence to the regulations. Estimates and guarantee values can only be given after successful test run in the testing facility. In this connection it is important that the subsequent boiler maker adheres to the specifications of the furnace geometry given by SAACKE.

## Burner dimensions CONOX UCC 320



## Emission diagram



## Burner size (mm)\*

Size	160	320	640
A	2,350	2,800	3,200
B	2,000	2,350	2,700
C	1,500	1,850	2,800
D	800	1,000	1,300

## Burner weight (kg)\*

Size	160	320	640
	1,150	1,700	2,500

## Product notes

- ✓ Reliably below the emission limits\*\* (with secondary measures)
- ✓ Reliable, economic use of pulverized lignite or coal dust
- ✓ Principally compact and stable flame for compact furnaces
- ✓ Large control range at maximum burn-out
- ✓ Reliable and approved dust dosing system
- ✓ Standardized, but flexible burner management system in line with requirements
- ✓ Various capacities available
- ✓ Price advantage over natural gas and fuel oil as well as independence from market fluctuations of raw materials prices
- ✓ Reference facility in Qingdao is available for customer visits

## Operating data

Size	160	320	640
Max. capacity (MW)	16	32	64
Control range	1:3 (1:4)		

## Emission values\*\* NO<sub>x</sub> (pulverized lignite and hard coal)

with secondary measures	100 - 150 mg/m <sup>3</sup> (depending on the plant concept)
without secondary measures	150 - 250 mg/m <sup>3</sup> (depending on the plant concept)

\* Burner mounting plate with tertiary air nozzle available on request. \*\* Compliance with regulations depends on the necessary coal qualities and the furnace geometry, which SAACKE communicates to the boiler manufacturer. Estimates and guaranteed values on the coal quality can only be provided after a successful measurement run in the SAACKE test facility.

